Dynasonics®
Ultrasonic Flow Meters

Ultrasonic Thickness Gauge

WT-2 Pipe Wall Thickness Gauge

FEATURES

- Uses the exclusive Micro-computer LSI circuit and crystal time base for highly accuracy measurements
- A high power of emission and a broad band of receiving sensitivities make it easy to measure the rough surfaces such as cast iron
- Widely used in a large variety of industries
- Capable of measuring the thickness of many materials including steel, cast iron, aluminum, red copper, brass, zinc, quartz glass, polyethylene, PVC, gray cast iron and nodular cast iron
- Automatic power off to conserve battery life
- Can communicate with PC computer for downloading statistics and printing using an optional cable and software package
- Large selection of pre-programmed materials and sound velocity values for convenient use
- Automatic and manual shutdown functions
- Coupling quality icon
- Bluetooth data output choice

COMPONENTS

Standard

- Handheld Display
- Transducer
- Acoustic Couplant
- Carrying Case
- Manual

Optional (Sold Separately)

- 5MΦ 12 mm high temperature transducer
- 6MΦ 6 mm thin material transducer
- USB data output port
- RS-232 data output port
- Bluetooth data output

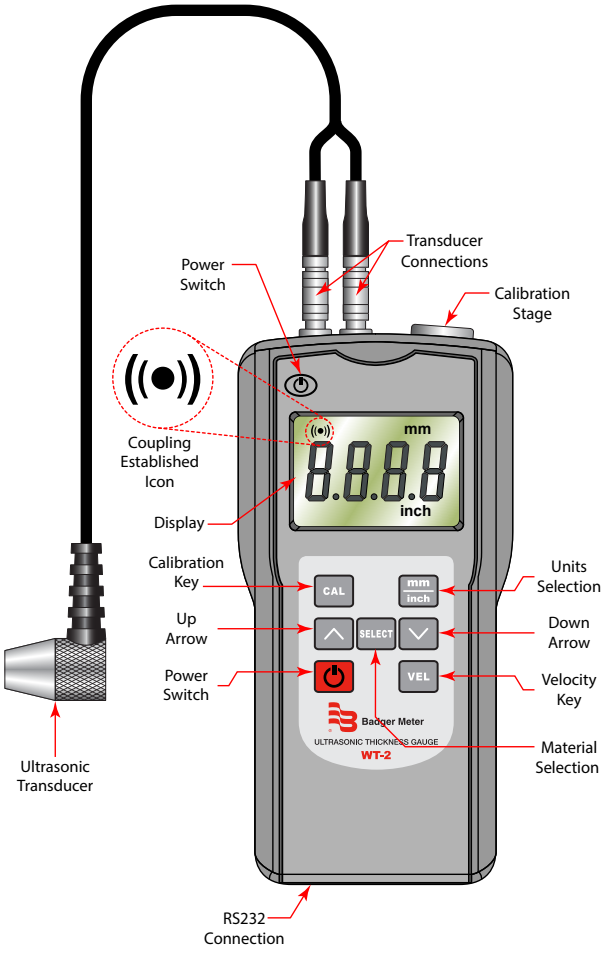

Figure 1: Gauge description and controls

SPECIFICATIONS

Display	Four digits, 0.4 in. (10 mm) LCD
Resolution	0.004 in. (0.1 mm)
Range	0.0475…7.875 in. (1.2…200 mm) (45# steel)
Accuracy	±(0.5% n+0.1)
Sound Velocity Range	3281…29,528 fps (1000…9000 mps)
Environmental	
Temperature	32…122° F (0…50° C)
Humidity	<80%
Display Units	Inches and millimeters
Power Supply	Four 1.5V AAA (UM-4 Battery)
Size	5.52 x 2.25 x 1.18 in. (140 x 70 x 30 mm)
Weight	9.2 oz (260 g) not including batteries

Badger Meter®

TTM-UM-00434-EN-02 (April 2015)

User Manual

MATERIAL SELECTION

1. Press either **Power** switch to turn on the unit.
2. Press **SELECT**. The display shows the code *cdxx* or *xxxx*. The *cd* is an abbreviation for code and *xx* is a number between 01…11 corresponding to a particular pipe material. *xxxx* is a four-digit user-defined material sound velocity.
3. Press ⌃ or ⌄ to select the correct pipe material code then. Press **SELECT** to confirm. The display shows *0*. If you select a material code but do not confirm the selection, the code automatically changes to *0* after several seconds. The meter saves the material code before exiting.

NOTE: If you press ⌃ while displaying *cd11* or *cd01,* the last user-defined sound velocity displays.

NOTE: You do not have to select the material code once the code is stored to memory unless you need a new material choice.

4. To browse the material code choices, press **SELECT** and then use ⌃ or ⌄ to scroll through the list. To stop browsing and make a material selection, press **SELECT** again. The code changes back to *0* and returns you to the measurement mode.

Code	Material	Code	Material	Code	Material
cd01	Steel	*cd05*	Brass	*cd09*	PVC
cd02	Cast Iron	*cd06*	Zinc	*cd10*	Gray Cast Iron
cd03	Aluminum	*cd07*	Quartz Glass	*cd11*	Nodular Cast Iron
cd04	Red Copper	*cd08*	Polyethylene	*xxxx*	Manual Sound Velocity

Table 1: Material codes

CALIBRATION

1. Place a small amount of couplant on the calibration stage.
2. Press **CAL**. The *CAL* indicator appears on the display.
3. Press the face of the transducer to the calibration stage. The coupling icon appears if the connection between the transducer and the calibration stage is established. *0.197 inch* or *5.0 mm* and *CAL* alternate on the display. When the alternation stops, press **CAL** to confirm. The unit automatically returns to measurement mode.

NOTE: The unit saves the calibration result automatically once confirmed. It is unnecessary to calibrate often unless the accuracy of measurement is suspect.

MEASURING PROCEDURE

1. Press either **Power** switch to turn on the unit.
2. Press Inch/mm to select the desired measurement unit.
3. Select the correct pipe material code. See *Table 1*.
4. Place a bead of couplant on the pipe surface.
5. Press the transducer onto the pipe surface to make a measurement. The display shows the wall thickness value.
6. Verify that coupling is established and the coupling icon is on (see *Figure 1*).

NOTE: The reading is held until a new measurement is made or until the power automatically turns off.

NOTE: To turn off the power, press either of the power switches or wait until the power automatically turns off after a period of inactivity.

MEASURING USING A KNOWN VELOCITY

1. Press **VEL**. The display shows the last pipe sound speed velocity used.
2. Set the known pipe velocity by pressing ⌃ or ⌄ in velocity mode.

NOTE: Every press increments or decrements the velocity by 32.8 fps (10 mps). To change the velocity in 328 fps (100 mps) jumps, press and hold ⌃ or ⌄ for more than four seconds.

3. Place a bead of couplant on the pipe surface.
4. Press the transducer onto the pipe surface to make a measurement.
5. Verify that coupling is established and the coupling icon is on (see *Figure 1*). As long as the pipe's sound speed is set correctly, the reading on display is the wall thickness of the pipe.

MEASURING AN UNKNOWN WALL THICKNESS USING A SAMPLE OF KNOWN THICKNESS

1. Using a sample pipe of known thickness, obtain the pipe's sound speed value by incrementing or decrementing the sound speed value until the wall thickness reading matches the known thickness value.
2. When the thickness values match, the velocity reading is the actual sound speed for the pipe sample.
3. With the known velocity for that pipe type set, measurement of the wall thickness of any pipe of the same type can be done.

BATTERY REPLACEMENT

1. When the battery symbol appears on the display, it is time to replace the batteries.
2. Slide the battery cover away from the instrument and remove the used batteries.
3. Install fresh AAA batteries, paying careful attention to polarity.

Control. Manage. Optimize.

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Legacy Document Number: 06-SEN-UM-00465-EN